The Significance of Mr. Richard Buckley's Exploding Trousers

Reflections on an Aspect of Technological Change in New Zealand Dairy Farming between the World Wars

JAMES WATSON

During the early 1930s many New Zealand farmers enthusiastically adopted the highly inflammable chemical sodium chlorate as a weedicide against ragwort. This development reflected many aspects of New Zealand farming at the time. Dairying was expanding rapidly, reducing the control of ragwort by grazing with sheep; large areas of land cleared in the post-war boom were reverting to weeds; farmers tended to look to the state to assist with their problems and the Department of Agriculture promoted the use of sodium chlorate; farmers were generally highly literate and were rapidly aware of new possibilities; and there was a continuing shortage of labor in farming. The latter reflected New Zealand's generally restrictive immigration policies; higher wages and greater freedom in urban employment; changing demography and attitudes to child labor; attitudes to married women working out on the farm; and, perhaps most importantly, the widespread drive for independence from farm workers and neighbors. Sodium chlorate seemed to promise a solution to the control of ragwort without the high financial and personal cost of finding additional labor.

JAMES WATSON, PhD, is Senior Lecturer and Head of School in the School of History, Philosophy and Politics at Massey University, Palmerston North, New Zealand. His teaching and research is largely in New Zealand history, and he has a particular interest in the interaction between technological change and society.

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ON AUGUST 12, 1931, the *Hawera Star,* a local newspaper in southern Taranaki, on the North Island of New Zealand, reported that,

> While Mr. Richard Buckley's trousers were drying before the fire recently they exploded with a loud report. Although partially stunned by the force of the explosion, he had sufficient presence of mind to seize the garments and hurl them from the house, where they smouldered on the lawn with a series of minor detonations.

Similar reports came in from other parts of the country. One individual was shocked to observe a newly hung-out load of washing burst into flame on the clothes-line. Numerous farmers and farm workers discovered for the first time that smoking could be hazardous to their health as items of their clothing lit up when they did. In a New Zealand version of "blazing saddles," one farmer found that the seat of his pants was starting to smoulder as he was riding his horse.[1]

There was, however, a tragic side to these events and a number of deaths occurred. Perhaps the saddest instance involved a farm worker returning home after a hard day's work and going in to see his sleeping baby. As in most farm workers' cottages at the time, there was no electric light. The father struck a match as he bent over the child, his clothes suddenly ignited, and he died shortly afterward of his injuries.[2]

The *Hawera Star* had the answer to this disturbing new phenomenon. Referring to Mr. Richard Buckley and his trousers, it declared that "the action of sodium chlorate is considered responsible for the catastrophe." Sodium chlorate is a white crystalline solid that became popular as a weedicide on New Zealand farms during the early 1930s, being adopted with startling rapidity particularly in the North Island. In 1930 imports of the chemical were negligible; by 1937 one thousand tons were brought into the country annually. Sodium chlorate is an extremely volatile substance often used as an explosive.[3]

Sodium chlorate is especially dangerous when mixed with organic matter, such as the fibers of wool or cotton. This became a particular problem when operators without protective clothing sprayed the chemical onto weeds. In the early 1930s few pastoral farmers knew of such clothing, let alone possessed it, and spray equipment was primitive and leaky. The chlorate was, furthermore, not easy to get out of clothes, as the tale of the wash burning on the line indicates.

Figure 1. The dangerous nature of sodium chlorate led to some Kiwi ingenuity in devising means to apply it safely. The use of this equipment does not appear to have become widespread. Photo from *New Zealand Farmer* (Feb. 1, 1933).

Why this sudden and widespread usage of sodium chlorate and therefore this epidemic of exploding trousers, blazing saddles, and tragic deaths during the early 1930s? Answers to this question can be found on several levels; an examination of these various levels reveal much about the long-term economic and social development of rural New Zealand.

A simple explanation for the great upsurge in the use of sodium chlorate lies in the equally explosive proliferation of a weed called ragwort (*senecio jacobaea*) in the two decades or so before 1930. Together with a host of other unwelcome plants, ragwort arrived in New Zealand from

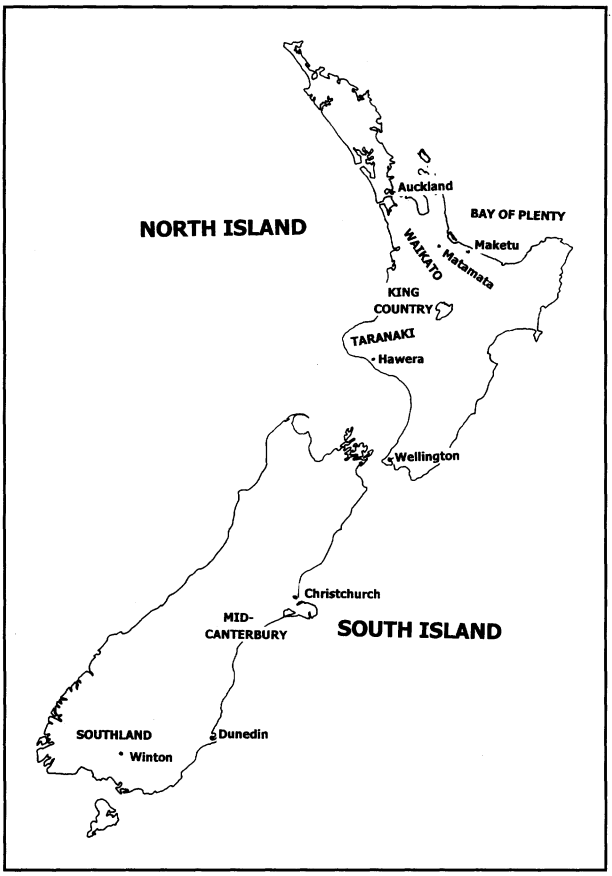

Figure 2. Map of New Zealand provided by James Watson.

Europe during the nineteenth century, becoming prolific in the wetter pastoral areas of the country, notably Southland and Taranaki, by 1900. It was unwelcome in pasture for two reasons. First, ragwort contains a strong poison that attacks the livers of livestock. The resulting sickness in cattle and horses, named "Winton Disease" after a local town, indicated ragwort's strong presence in Southland. Second, ragwort seeds enthusiastically and can spread rapidly, displacing clover and grasses, and drastically reducing production.[4]

The dramatic increase in concern about ragwort during the 1920s relates to a large extent to the transformation of New Zealand agricultural production that followed the development of refrigerated shipping services from New Zealand to Britain from 1882 onward. Though rapid

growth of dairy farming presents a major aspect of this transformation, particularly in the North Island, dairy production did not benefit from refrigeration as much as the meat industry until the 1890s. Thereafter, benefits increased, fuelled not least by the progressive development of high-producing exotic pastures featuring clover supported by dressings of phosphatic fertilizer. In addition, the advent of motorized collections of cream from the end of the Great War onward increased the industry's efficiency and promoted its expansion to new areas. In the twenty years between 1899 and 1919 the national dairy herd more than doubled, and it more than doubled again in the subsequent twenty years. It more than tripled in the southern part of Auckland Province, the area whence so much of the worry about ragwort was coming.[5]

Cattle are especially susceptible to the poisonous alkaloid in ragwort and, wisely, they generally avoid eating the plant. Sheep, on the other hand, are considerably more resistant to the poison and can chomp their way through significant quantities of ragwort with much less effect. Indeed, heavy stocking with sheep was the preferred means of controlling the weed. However, much of the development in the higher rainfall areas of New Zealand during the early twentieth century centered on comparatively small owner-operated dairy farms that had to be grazed fairly intensively. Conversion to sheep-farming was for many of them not an economic option, particularly as subdivision with sheep-proof fences involved a significant cost and sheep were less profitable per acre.

Most of the outcry regarding ragwort arose from then recently developed areas of the North Island, particularly the King Country, and had a number of implications. First, farms at this stage of development were generally hard-pressed for income with limited production while in the process of clearing and fencing land. The steady income from the monthly cream check, and the opportunity to get advances against it, was particularly valuable to farmers in such areas. Second, these recently developed areas were mainly unsuitable for another major form of weed control, cultivation. It is noticeable that Southland, in some ways the great ragwort province, featured little in the great ragwort/sodium chlorate controversy of the interwar period despite plenty of dairying there. However, there was also plenty of cultivation, not least for winter fodder crops—Southland winters being harsher than those in the northern half of the North Island. An infestation of ragwort that threatened to get out of hand

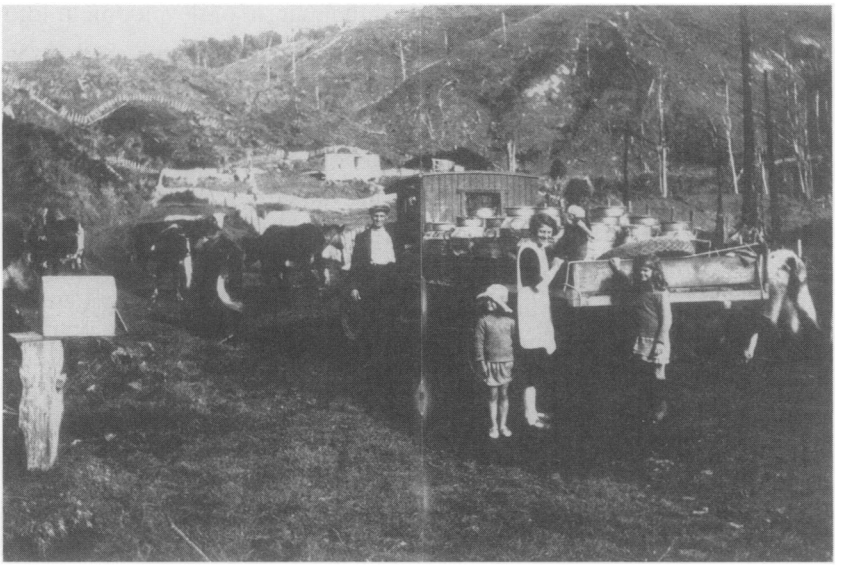

Figure 3. The cream-collection lorry called at the Runciman family farm in the King Country for the first time in September 1932. Note the steep hillsides partially cleared of forest. Controlling ragwort on such land was particularly difficult. Photo courtesy of *New Zealand Memories*.

could be destroyed by plowing and harrowing before planting a crop. The topography of the country in the recently developed areas of the north was frequently steep—too challenging even for the ready use of hillside plows. More important, the newly cleared land was typically littered with stumps and logs. It generally required a vast amount of work with explosives, stump jacks, horses, or tractors to make it suitable for cultivation. At the same time, the ground lacked the quantity of combustible material required to deploy the classic frontier weedicide: fire. Much of the combustible material that was available consisted of fence posts and yards—farmers hardly wanted to see them go up in smoke.[6]

Finally, such frontier districts tended to have many areas where the yellow-flowered weed could grow undisturbed. These included the margins of the rainforest, clearings within it and, more often than not, sections that had been cleared, or partially cleared, at some stage and then abandoned. The development of rural New Zealand is frequently marked by individual and/or collective over-optimism concerning the productive potential of areas of land. Temporary high product prices and govern-

ment encouragement repeatedly pushed the margin of development into places where it could not be sustained. Scrub generally took over these places once the wave of optimism reached its high-water mark and the frequently borrowed money that gave it its impetus soaked away. Until another wave surged forward, such areas of scrub created a wonderful nursery for ragwort. The high prices during the Great War and the immediate post-war period drove development forward. The sharp depression of 1921–22, the modest subsequent recovery, and the Depression that began late in the decade and worsened considerably in the early 1930s drew the margin of economic farming back again.[7]

In 1937 the recently established Ragwort Committee of prominent New Zealand scientists and the Department of Agriculture received a detailed report on ragwort in the Maketu Survey District in the Bay of Plenty. Speaking of the roughly 10 percent of the district now occupied by scrub, the officer who produced the report remarked:

> The grazing and wintering of a few dry stock would probably be the chief purpose it serves. Considering the rough and broken nature of this block of country, it is difficult to understand that it was ever thought worth developing but since it was, it is very unfortunate that it is now almost abandoned as it is simply a propagating bed for ragwort at present.[8]

Another significant aspect of the adoption of sodium chlorate weed-killer was the rapidity with which knowledge and acceptance of the chemical spread. Before 1930 imports of sodium chlorate into New Zealand were practically non-existent, but within one year hundreds of tons were being imported. The catalyst was the publication of an article in the *New Zealand Journal of Agriculture* in 1930 by J. W. Deem, director of the Fields Division of the Department of Agriculture. He declared that sodium chlorate and calcium chlorate would "where properly applied . . . completely destroy all the plants and stand out far above any other sprays for the control of ragwort." Calcium chlorate, thought to be less effective than sodium chlorate and harder to handle, was far safer. A further article by Deem in the same journal two months later reiterated these conclusions in response to a flood of requests for information from farmers.[9]

In 1932 an article appeared in the *New Zealand Farmer,* a private magazine, extolling the effectiveness of spreading sodium chlorate mixed with lime as a dry powder rather than with water as a spray. The writer, a

farmer, maintained that "sodium chlorate is the greatest boon that ever came into the King Country," and described and priced the broadcasting process. The following year Deem noted that the spreading of chlorate with lime seemed to have become customary.[10]

This suggests that large numbers of farmers were reading and taking note of what was written in the farming press. New Zealand farmers seem to have been quite a literate group, and open in their reading to new developments that might prove helpful. This view is also supported by a survey of the standards of living in dairy farming and share-milking households during the late 1930s. Results indicated that on average such households subscribed to more than four regular publications, including one concerned directly with farming. This is particularly striking when one considers the nature of the households surveyed. The general pattern was that people with very limited capital found it much easier to establish themselves in dairying than in sheep farming, not least through the mechanism of share-milking. Consequently, the educational level of the farmers surveyed was probably lower than that of sheep and beef farmers.[11]

Along with this propensity to read, there was a fairly widespread respect for science and scientific method among New Zealand farmers, as manifest in the response to Deem's articles on sodium chlorate and ragwort. There is evidence of it later when officers of the Department of Agriculture started to question the value of the use of chlorate. The most vocal of these doubters was Percy Smallfield, who much later became Director-General of Agriculture. At least one employee of the Ruakura Research Station in the Waikato apparently formed the same opinion. In March 1937 the engineer of the Matamata County Council, the officer responsible for overseeing the control of noxious weeds in the county, wrote to the Department of Agriculture's chief inspector in Auckland: "A bird named Brown attached to Ruakura to study Ragwort is going about making statements implying that sodium chlorate is almost valueless and he leaves the impression, on some of his hearers, that this is a departmental opinion based upon careful observation . . . Is this right?" The engineer mentioned that some of the farmers in the county had started to shun chlorate as a result. It would seem that even the limited scientific credentials of "a bird named Brown" attached to a research station carried some weight with some practical farmers. The question of how to respond to this embarrassing development sparked a rather sharp exchange between

Smallfield and his boss, R. B. Tennent, director of Fields Division. Smallfield maintained that what he saw as the self-evident, long-term ineffectiveness of chlorate raised doubts in the farming community: "One can see that farmers are making investigations in this respect and many fields contain pegged plants which farmers are obviously watching."[12]

The widespread respect for the Department of Agriculture and its scientists could be seen as overlapping with another aspect of the history of New Zealand farming—the tendency to look to the state for guidance and assistance. This crops up repeatedly when one looks at the issue of technological change. For instance, it may well have been a factor in the remarkably belated development of agricultural aviation in New Zealand. There was certainly an awareness of the widespread and manifold agricultural use of aircraft in the United States. There were repeated musings on the enormous potential locally, particularly in spreading fertilizer on hill-country—a process known as aerial top-dressing in New Zealand. Yet nothing significant happened until the late 1940s, and it was the state that took the initiative then. The first recorded call for a trial of aerial top-dressing to be undertaken came from farmers in the southern North Island in 1926. They automatically looked to the government via one of its local members of Parliament:

> We have a flying corps, ornamental I expect, but could it not become useful. The Premier cries out for more production and the arbitration court raises the expenses. The Government might give it a trial. Will you kindly ask the minister concerned to give it a fair trial and see what can be done. Private individuals cannot afford to experiment but it is up to the powers that be to give it a trial.

Not a lot of rugged individualism was evident there, except perhaps in a certain disrespect for authority, the very authority to which the request was directed. Nothing significant appears to have been done or suggested by the private sector during the next two decades.[13]

In the case of sodium chlorate there was something of the same tendency to look for government intervention. Thus Deem noted that,

> Representations have been made to the Department of Agriculture that we should import the chlorates and sell to farmers at cost price, but it has been decided that so long as merchants import sufficient and sell it at a reasonable profit over cost the Department will not interfere.

> Should any attempt be made to impose an undue profit the Department certainly would reconsider the position.

It required a civil servant, an employee of the state, to mount a defense of the free market, and he gave a strong assurance that its freedom would be circumscribed.[14]

Finally, the story of the spread of ragwort and the adoption of sodium chlorate as a major weapon against it exemplifies that great driving force behind technological change in New Zealand farming throughout the twentieth century: the desire to make the farm a "one-man operation." Advertisements for new machinery increasingly featured this phrase.The motivation behind this search for the one-man operation was multifaceted. Labor in New Zealand was comparatively expensive and tending to get more so. Calculations of the benefits of sodium chlorate were constantly referring to the cost of labor in pulling up ragwort, the traditional method of control where cultivation or the grazing of sheep was impracticable or insufficient. New Zealand farmers were competing for labor, certainly much of the best labor, with tariff-protected industries in the cities and wage rates established by the central Arbitration Court (referred to by the farmer advocating agricultural aviation above). Furthermore, the flow of immigration to New Zealand tended to be intermittent and far more restricted than to the United States. The democratic decision had been taken that really only Europeans need apply, and if possible they should be from the British Isles. The cost and challenge of the long journey out from Britain made immigration to New Zealand an expensive and daunting proposition, particularly for unskilled labor. Significantly, sodium chlorate caught on during the depths of the Depression of the 1930s when the country had nearly one hundred thousand unemployed men. Even in those conditions, work on farms was not attractive at the wages and conditions offered.[15]

Much of the labor on most New Zealand farms came from the family and was not paid, at least directly. However, this source of labor was under challenge. Compulsory schooling to fourteen years of age deprived the farm of many hours of youthful toil, particularly as the state and its inspectors got increasingly intolerant of local and individual exceptions to the rule that children should spend most weekdays actually in class. Technology, in the form of motor transport, helped inspectors to police the law in isolated areas and from the mid-1920s increasingly took the children to

Figure 4. This advertisement for the shearing machine illustrates the counter-communal tendency, noting that the buyer can "obviate vexatious delays caused by wet weather and waiting your turn at the neighbour's Shed" as well as "avoid possible strained relations with a neighbour." Advertisement provided courtesy of James Watson.

more distant and less informal schools by bus. Furthermore, New Zealand families, even most farm families, were following that great demographic transition from an average of eight births or more down to three or four. Less mouths to feed, but also fewer hands to work the farm.[16]

In all this there is evidence of Norbert Elias's "civilising process," or, more mundanely, of the search for greater respectability. Having small children working on the farm instead of attending school was increasingly seen as something respectable parents did not do. The same factor arose regarding the question of whether a wife should work out on the farm. Respectable opinion, represented not least by a rural sociologist like W. T. Doig, regarded such work for women with disfavor. More popularly, there seems to have been a widespread belief that a farmer had failed in his responsibility to provide properly for his family if his wife had to work out on the farm. One newlywed farm wife in the 1950s offended her husband by suggesting that she should help on the farm: "Certainly not! I don't want my wife working outside doing rough farm work. You'll stay in the house where you belong."[17]

The fact that farms were tending to become bigger and more capitalized (partly in order to dispense with labor) probably helped to fuel this trend. Poverty did not stop people searching for respectability, nor did wealth necessarily evade the disreputable, but the pressures and opportunities to set higher standards do surely have a tendency to increase with increasing wealth. This is at least partly indicated by Doig's finding that 53 percent of wives worked on the farm if it produced less than nine hundred pounds of butterfat, whereas the figure was 10–13 percent for farms producing over two thousand pounds of butterfat. Indeed the 53 percent is the most surprising figure—these must surely have been very marginal farms, but only half the wives went out working on them.

Employed farm labor not only required supervision, but for some reason employees seldom worked as desperately hard for their low wages as farmers themselves were prepared to do on their own farms. New Zealand farms, particularly dairy farms, were small and unlikely to employ more than one or two workers. The laborers generally ate with the family, which was often a problem in terms of the search for respectability. Bob Halfyard, a farm worker, specifically a teamster, on a mixed cropping-livestock farm in Mid-Canterbury in the 1940s serves as an example of the problems encountered. Bob was an extremely good teamster, and so

devoted to his horses that he spent much of his day off each week sitting out in the paddock talking to them. However, Bob's table manners were somewhat mixed. True, he said "excuse me, Missus" before reaching over the table to help himself to the bread, but the effect was more than spoiled by the sleeve of his old coat trailing through the butter and his neighbors' food. He admired the cruet set, with its little glass containers, but failed to appreciate that in the best families Worcester sauce is not swigged straight from the bottle. The lady of the household suffered agonies as she sought to balance the need to bring her children up with good manners while not offending a good worker. Eventually the tractor, replacing Bob, came to the rescue. [18]

Above all, perhaps, the "one-man operation" was the logical conclusion to the search for independence to which the New Zealand historian Miles Fairburn has referred so often, and which sat comfortably with an expectation of assistance from the State. Fairburn sees this drive for independence as central to the patterns of both farm and suburban settlement in New Zealand.[19]

Farming people in New Zealand, as no doubt in the United States, tend to see themselves as friendly, cooperative, and community-minded people. However, the option of pooling labor and resources with neighbors seems to have had surprisingly little appeal as a solution to the problem of finding labor. In this advertisement for a shearing machine (see Figure 4), the prospect of gaining or maintaining independence from having to cooperate with neighbors is mentioned three times.

Ultimately, of course, how can a man be truly independent if he has to rely on employees to work for him, especially employees who may well leave if he does not go out of his way to keep them happy? The truly independent farmer must surely have a range of machines and chemicals to give him the illusion that he depends on no one. This happy state has, of course, its costs. At the major end of the scale one might think of the lone farmer dying beneath his upturned tractor somewhere out on his one-man operation, or one of those men burned to death with sodium chlorate. At the minor end of the scale, we could place Mr. Richard Buckley's exploded trousers.

Thus the incident near Hawera in 1931 can be seen as reflecting many facets of New Zealand farming during the early twentieth century. These include the great growth in dairying, the advance into and sometimes retreat from marginal areas, the high level of literacy and interest in new

methods among New Zealand farmers, their tendency to look for government assistance and leadership, the increasing cost and decreasing availability of farm labor, and the only partly related preference for the "one-man operation."

NOTES

1. *Hawera (Taranaki) Star,* Aug. 12, 1931, 6; *New Zealand Journal of Agriculture* (Jan. 20, 1931): 55 and (Mar. 20, 1931): 200; B. C. Aston and J. A. Bruce, "The Chemistry of Weed-Killers," *New Zealand Journal of Agriculture* (Apr. 20, 1933): 230–32.

2. Aston and Bruce, "The Chemistry of Weed-Killers," (continued), *New Zealand Journal of Agriculture* (July 20, 1933): 4–7. There were two other fatalities up to that time.

3. An elderly farmer from northern Taranaki described how sodium chlorate was used to shatter tree stumps—a major obstacle to cultivation in the region, which had been largely covered with rainforest prior to European settlement. Despite its cheapness in relation to gelignite, he had resisted using the unstable chlorate in this way. It could be too hard on the fingers, he remarked laconically. Interview with Claude Julian, Apr. 7, 1991. In 1933 a quarryman lost two fingers while using chlorate as an explosive. Aston and Bruce, July 20, 1933.

4. A later publication noted that "A 'seed' fly was liberated in 1936–37 and has become established in one centre in the North Island, destroying 98% of the ragwort seed. Unfortunately the remaining seed is more than enough to maintain the stand." J. W. Hadfield, *Handbook of New Zealand Agriculture* (Christchurch: Whitcombe and Tombs, 1959), 115; H. Guthrie-Smith, *Tutira: The Story of a New Zealand Sheep Station,* 3rd ed. (Edinburgh: William Blackwood and Sons, 1953), the classic account of the impact of human settlement on a farm in northern Hawke's Bay suggests on page 289 that horses actually spread the seed, despite their understandable aversion to the plants themselves.

5. For a historical overview of the development of New Zealand's dairy industry, see Eric Warr, *From Bush-Burn to Butter* (Wellington: Butterworths, 1988).

6. It is probably largely a reflection of the lesser importance of "frontier" dairying in the South Island that the classic work on the introduction of pests and weeds into New Zealand makes only passing reference to ragwort. Andrew Hill Clark, *The Invasion of New Zealand by People, Plants and Animals: The South Island* (New Brunswick, N.J.: Rutgers University Press, 1949), 349. However, Clark notes that ragwort was one of two weeds that "appear particularly on dairy pastures."

7. For an account of the process of advance and withdrawal, and official attempts to combat "land deterioration," see Michael Roche, *Land and Water: Water and Soil Conservation and Central Government in New Zealand, 1941–1988* (Wellington: Historical Branch, Department of Internal Affairs, 1994). Jim McAloon, *Nelson: A Regional History* (Whatamango Bay: Cape Catley Ltd., in association with the Nelson City Council, 1997), 161, notes this process in a region of the northern South Island.

8. Fields Superintendent, Auckland, to Botanist, Plant Research Bureau, Palmerston North, Nov. 26, 1936, AG 40 1937/386, New Zealand National Archives [hereafter NZNA].

9. J. W. Deem, "Control of Ragwort and Other Weeds by Spraying: Remarkable Results with Sodium and Calcium Chlorate," *New Zealand Journal of Agriculture* (May 20, 1930): 291–94; "Control of Weeds by Sodium and Calcium Chlorates: Further Information and Advice," *New Zealand Journal of Agriculture* (July 21, 1930): 1–3.

10. *New Zealand Farmer,* July 1, 1932, 528; Deem, "Control of Ragwort on Grassland: The Spraying and Dry-Dusting Methods of Using Sodium Chlorate," *New Zealand Journal of Agriculture* (Aug. 21, 1933): 105–10.

11. W. T. Doig, *A Survey of the Standards of Life of New Zealand Dairy-Farmers* (Wellington: Department of Scientific and Industrial Research, 1940), 67–68. Rollo Arnold, *New Zealand's Burning: The Settlers' World in the Mid 1880s* (Wellington: Victoria University Press, 1994), 227–30, argues that this strong interest was evident as early as the 1880s. I found some further evidence of the propensity of New Zealand farmers to read and to act on the things they read in Department of Agriculture files from the period immediately after the Second World War. In 1946 an article appeared in the *Reader's Digest* describing the amazing effectiveness against harmful weeds of hormone sprays developed during the war for use against Japanese crops. Farmers quickly besieged the Department with requests as to when the new material would become available in New Zealand.

12. M. E. Fitzgerald, County Engineer, Matamata County Council, to H. Cleland, Chief Inspector, Department of Agriculture, Auckland, Mar. 17, 1937, AG 40 1937/386, NZNA; P. W. Smallfield, Fields Superintendent, Hamilton, to R. B. Tennent, Director Fields Division, Wellington, Apr. 3, 1937, AG 40 1937/386, NZNA.

13. John Lambert to John Elliot, quoted in Janic Geelen, *The Topdressers* (Te Awamutu: New Zealand Aviation Press, 1983), 9; H. R. Rodwell, "Taxation, Grants, and Subsidies in Relation to Farming," in *Agricultural Organization in New Zealand: A Survey of Land Utilization, Farm Organization, Finance and Marketing,* ed. H. Belshaw, et al. (Melbourne: Melbourne University Press/Oxford University Press, 1936), 231–32, refers to the numerous forms of assistance available to agriculture by the mid-1930s in New Zealand.

14. Deem, "Control of Weeds by Sodium and Calcium Chlorates," 1–3.

15. In the second edition of his pioneering work on a rural community in the South Island, H. C. D. Somerset used this term in remarking on how hay-making in the early 1970s was "a one-man process all through." H. C. D. Somerset, *Littledene: Patterns of Change* (Wellington: New Zealand Council for Educational Research, 1974), 137.

16. Colin McGeorge, "School Attendance and Child Labour, 1890–1914," *Historical News,* 46:17–20.

17. Sally K. Parker, "A Golden Decade?: Farm Women in the 1950s," in *Women in History 2,* ed. Barbara Brookes, Charlotte Macdonald, and Margaret Tennant (Wellington: Bridget Williams Books, 1992), 211.

18. I am grateful to my colleague Basil Poff for these recollections from his childhood. Elvin Hatch, *Respectable Lives: Social Standing in Rural New Zealand* (Berkeley: University of California Press, 1992), 132–58, looks at the impact of the "civilising process" during the early twentieth century in a nearby area of Canterbury.

19. Miles Fairburn, *The Ideal Society and its Enemies: The Foundations of Modern New Zealand Society 1850–1900* (Auckland: Auckland University Press, 1989); "The Rural Myth and the New Urban Frontier: An Approach to New Zealand Social History, 1870–1940," *New Zealand Journal of History* 9 (Winter 1975): 3–21; "Social Mobility and Opportunity in Nineteenth-Century New Zealand," *New Zealand Journal of History* 13 (Winter 1979): 43–60; "Local Community or Atomised Society? The Social Structure of Nineteenth-Century New Zealand," *New Zealand Journal of History* 16 (Spring 1982): 146–67. For a wide-ranging collection of articles on human impact on the New Zealand environment, see *Environmental Histories of New Zealand,* ed. Eric Pawson and Tom Brooking (Melbourne: Oxford University Press, 2002).